

CLAIMS

1. A method of diagnosing a predisposition to developing PRC in a subject, comprising determining a level of expression of a PRC-associated gene in a patient derived biological sample, wherein an increase or decrease of said level compared
5 to expression level of said gene in PIN indicates that said subject is at risk of developing PRC.
2. The method of claim 1, wherein said PRC -associated gene is selected from the group consisting of PRC 1-40, wherein an increase in said level compared to a level in PIN indicates said subject is at risk of developing PRC.
- 10 3. The method of claim 2, wherein said increase is at least 10% greater than said level in PIN.
4. The method of claim 1, wherein said PRC -associated gene is selected from the group consisting of PRC 41-138, wherein a decrease in said level compared to a level in PIN indicates said subject is at risk of developing PRC.
- 15 5. The method of claim 4, wherein said decrease is at least 10% lower than said level in PIN.
6. The method of claim 1, wherein said method further comprises determining said level of expression of a plurality of PRC -associated genes.
7. The method of claim 1, wherein the expression level is determined by any one
20 method select from group consisting of:
 - (a) detecting the mRNA of the PRC -associated genes,
 - (b) detecting the protein encoded by the PRC -associated genes, and
 - (c) detecting the biological activity of the protein encoded by the PRC -associated genes.
- 25 8. The method of claim 1, wherein said level of expression is determined by detecting hybridization of a PRC -associated gene probe to a gene transcript of said patient-derived biological sample.
9. The method of claim 8, wherein said hybridization step is carried out on a DNA

- 52 -

array.

10. The method of claim 1, wherein said biological sample comprises an epithelial cell.
11. The method of claim 1, wherein said biological sample comprises prostate cancer cell.
- 5 12. The method of claim 8, wherein said biological sample comprises an epithelial cell from a PRC.
13. A PRC reference expression profile, comprising a pattern of gene expression of two or more genes selected from the group consisting of PRC 1-138.
14. A PRC reference expression profile, comprising a pattern of gene expression of two or more genes selected from the group consisting of PRC 1-40.
- 10 15. A PRC reference expression profile, comprising a pattern of gene expression of two or more genes selected from the group consisting of PRC 41-138.
16. A method of screening for a compound for treating or preventing PRC, said method comprising the steps of:
 - 15 a) contacting a test compound with a polypeptide encoded by PRC 1-138;
 - b) detecting the binding activity between the polypeptide and the test compound;
 - and
 - c) selecting a compound that binds to the polypeptide.
17. A method of screening for a compound for treating or preventing PRC, said method comprising the steps of:
 - 20 a) contacting a candidate compound with a cell expressing one or more marker genes, wherein the one or more marker genes is selected from the group consisting of PRC 1-138; and
 - b) selecting a compound that reduces the expression level of one or more marker genes selected from the group consisting of PRC 1-40, or elevates the expression level of one or more marker genes selected from the group consisting of PRC 41-138.
- 25 18. The method of claim 17, wherein said test cell comprises a prostate cancer cell.

- 53 -

19. A method of screening for a compound for treating or preventing PRC, said method comprising the steps of:
- a) contacting a test compound with a polypeptide encoded by selected from the group consisting of PRC 1-138;
 - 5 b) detecting the biological activity of the polypeptide of step (a); and
 - c) selecting a compound that suppresses the biological activity of the polypeptide encoded by PRC 1-40 in comparison with the biological activity detected in the absence of the test compound, or enhances the biological activity of the polypeptide encoded by PRC 41-138 in comparison with the biological activity
10 detected in the absence of the test compound.
20. A method of screening for compound for treating or preventing PRC, said method comprising the steps of:
- a) contacting a candidate compound with a cell into which a vector comprising the transcriptional regulatory region of one or more marker genes and a reporter gene
15 that is expressed under the control of the transcriptional regulatory region has been introduced, wherein the one or more marker genes are selected from the group consisting of PRC 1-138
 - b) measuring the expression or activity of said reporter gene; and
 - c) selecting a compound that reduces the expression or activity level of said reporter
20 gene when said marker gene is an up-regulated marker gene selected from the group consisting of PRC 1-40, as compared to a level in control or that enhances the expression level of said reporter gene when said marker gene is a down-regulated marker gene selected from the group consisting of PRC 41-138, as compared to a level in control.
- 25 21. A kit comprising a detection reagent which binds to two or more nucleic acid sequences selected from the group consisting of PRC 1-138.
22. An array comprising a nucleic acid which binds to two or more nucleic acid sequences selected from the group consisting of PRC 1-138.
23. A method of treating or preventing PRC in a subject comprising administering to
30 said subject an antisense composition, said composition comprising a nucleotide sequence complementary to a coding sequence selected from the group consisting

- 54 -

of PRC 1-40.

24. A method of treating or preventing PRC in a subject comprising administering to said subject a siRNA composition, wherein said composition reduces the expression of a nucleic acid sequence selected from the group consisting of PRC 1-40.
25. A method of treating or preventing PRC in a subject comprising the step of administering to said subject a pharmaceutically effective amount of an antibody or fragment thereof that binds to a protein encoded by any one gene selected from the group consisting of PRC 1-40.
26. A method of treating or preventing PRC in a subject comprising administering to said subject a vaccine comprising a polypeptide encoded by a nucleic acid selected from the group consisting of PRC 1-40 or an immunologically active fragment of said polypeptide, or a polynucleotide encoding the polypeptide.
27. A method of treating or preventing PRC in a subject comprising administering to said subject a compound that increases the expression or activity of PRC 41-138.
28. A method of treating or preventing PRC in a subject, said method comprising the step of administering a compound that is obtained by the method according to any one of claims 16-20.
29. A method of treating or preventing PRC in a subject comprising administering to said subject a pharmaceutically effective amount of polynucleotide select from group consisting of PRC 41-138, or polypeptide encoded by thereof.
30. A composition for treating or preventing PRC, said composition comprising a pharmaceutically effective amount of an antisense polynucleotide or small interfering RNA against a polynucleotide select from group consisting of PRC 1-40 as an active ingredient, and a pharmaceutically acceptable carrier.
31. A composition for treating or preventing PRC, said composition comprising a pharmaceutically effective amount of an antibody or fragment thereof that binds to a protein encoded by any one gene selected from the group consisting of PRC 1-40 as

- 55 -

an active ingredient, and a pharmaceutically acceptable carrier.

32. A composition for treating or preventing PRC, said composition comprising a pharmaceutically effective amount of the compound selected by the method of any one of claims 16-20 as an active ingredient, and a pharmaceutically acceptable carrier.

5